UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, DC 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the

Securities Exchange Act of 1934

Date of report (Date of earliest event reported): September 24, 2007

Mercury Computer Systems, Inc.

(Exact Name of Registrant as Specified in Charter)

Massachusetts (State or Other Jurisdiction 000-23599 (Commission File Number) 04-2741391 (IRS Employer

of Incorporation)

Identification No.)

199 Riverneck Road, Chelmsford, Massachusetts (Address of Principal Executive Offices)

01824 (Zip Code)

Registrant s telephone number, including area code: (978) 256-1300

N/A

(Former Name or Former Address, if Changed Since Last Report)

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Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (*see* General Instruction A.2. below):

- " Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- " Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- " Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- " Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 5.02. Departure of Directors or Principal Officers; Election of Directors; Appointment of Principal Officers; Compensatory Arrangements of Certain Officers.

(a) (d) Not applicable.

(e)(i) On September 24, 2007, the Compensation Committee of the Board of Director of Mercury Computer Systems, Inc. (the Company) approved a form of Stock Option Agreement to be used in connection with the granting of performance stock options under the Company s 2005 Stock Incentive Plan (the 2005 Plan). Performance stock options vest upon the achievement of performance objectives determined by the Compensation Committee, and are generally subject to forfeiture if such objectives are not achieved within the time period determined by the Compensation Committee.

The form of Stock Option Agreement with respect to performance stock options provides that the stock option shall terminate and no portion will be exercisable on the earliest of the following:

the expiration date;

the date the grantee ceases to be an employee of the Company due to dismissal for cause or because the grantee is in breach of any employment agreement with the Company;

12 months following the date the grantee ceases to be an employee of the Company due to permanent disability;

12 months following the date of the grantee s death;

five years following the date the grantee ceases to be an employee of the Company due to retirement; and

90 days following the date the grantee ceases to be an employee of the Company for any reason other than as described above. The stock option will be exercisable as described above after the grantee s death or after the grantee otherwise ceases to be an employee of the Company only to the extent it was vested and exercisable immediately prior to the grantee s death or cessation or termination of employment.

If the grantee, either on the date of grant of the stock option or subsequent thereto, is or becomes a director of the Company, and thereafter ceases to be an employee while remaining a non-employee director, such change in status does not constitute a termination of employment for purposes of the last two bulleted clauses set forth above until the grantee service as a director has ceased.

The form of Stock Option Agreement with respect to performance stock options under the 2005 Plan is filed herewith as Exhibit 10.1 and is incorporated herein by reference.

(e)(ii) On September 26, 2007, the Company entered into a First Amendment to Employment Agreement (the First Amendment) with Robert E. Hult, Senior Vice President, Chief Financial Officer and Treasurer of the Company. Pursuant to the First Amendment, Mr. Hult agreed to defer his previously-announced retirement date to February 1, 2008.

Upon Mr. Hult s retirement on or after February 1, 2008, the First Amendment provides that his bonus under the Company s annual executive bonus program for fiscal year 2008 will be pro-rated to reflect his period of service during the fiscal year through his retirement date, and that such pro-rated amount will be paid within 30 days following his retirement date. Pursuant to the terms of the First Amendment, Mr. Hult will be entitled to cash consulting fees and the continued vesting of certain restricted stock awards in accordance with their original vesting schedules so long as he continues to be available to provide consulting services to the Company through February 1, 2010. Except to the extent expressly amended by the First Amendment, the terms of Mr. Hult Employment Agreement remain in full force and effect.

The foregoing summary is qualified in its entirety by reference to the First Amendment, a copy of which filed as Exhibit 10.2 to this Current Report on Form 8-K and is incorporated herein by reference, and to Mr. Hult soriginal Employment Agreement, a copy of which was filed as Exhibit 10.1 to the Company so Current Report on Form 8-K filed with the Securities and Exchange Commission on March 13, 2007 and is incorporated herein by reference.

(f) Not applicable.

Item 9.01. Financial Statements and Exhibits.

(d) Exhibits.

Exhibit No. 10.1	Description Form of Stock Option Agreement for performance stock options under the Mercury Computer Systems, Inc. 2005 Stock Incentive Plan.
10.2	First Amendment to Employment Agreement dated September 26, 2007 between Mercury Computer Systems, Inc. and Robert E. Hult.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

MERCURY COMPUTER SYSTEMS, INC. (Registrant)

Date: September 28, 2007

By: /s/ Alex N. Braverman
Alex N. Braverman

Vice President, Corporate Controller and

Chief Accounting Officer

EXHIBIT INDEX

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